

MOLLUSKS FROM AN ARCHAEOLOGICAL SITE IN WOODFORD COUNTY, KENTUCKY

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ABSTRACT

Over 400 mollusk shells have been deposited by Fort Ancient people (900–1650 AD) in a Woodford County, Kentucky rockshelter. The analysis of the shell remains has revealed a diverse fauna consisting of one physid and three pleurocerid snails and 20 unionid mussels. The occurrence of *Pleurobema plenum*, *Obovaria retusa* and *Epioblasma sampsoni* are noteworthy since these species have become increasingly rare in modern times and these collections represent Kentucky River drainage records. The species composition found indicates that during the late prehistoric period this portion of the river was a medium to large sized stream with moderate current and shoal areas. Shells were not modified as tools or adornments; however, the mollusks were apparently used as a food source. The shelter was apparently inhabited sporadically for short durations during the fall, winter and spring.

In August 1980 human skeletal remains were discovered in a rockshelter adjacent to the Kentucky River in southwestern Woodford County, Kentucky (Fig. 1). This eventually resulted in a series of preliminary excavations by the University of Kentucky Department of Anthropology in cooperation with the Kentucky Office of State Archaeology. The initial investigation yielded additional skeletal remains, various artifacts and over 400 mollusk fragments or shells from what is now referred to as the Pauzar Rockshelter (Robinson et al., 1981). This investigation has expanded the present knowledge of the Kentucky River mollusk fauna.

The rockshelter is located approximately 200 meters from the Kentucky River in a wooded area on an unnamed first order, high gradient tributary. This ephemeral stream cascades across the mouth of the rockshelter and cuts through the limestone bluffs of the palisades as it flows to the river.

A perusal of the literature indicates that the Kentucky River mollusk fauna is poorly known. The gastropods and sphaerid clams of two major Kentucky River tributaries, the Dix and Red rivers, have been surveyed by Branson and Batch (1981, 1982 respectively). Houp (1970) discussed the

population dynamics of *Pleurocera acuta* in another Kentucky River tributary, Silver Creek. The mainstem unionid mussel fauna was first studied by Dangle (1922) and later by Williams (1975). Houp (1980) discussed the naiads of a portion of the Red River and Taylor (1981) surveyed the mussel fauna of Eagle Creek, another mainstem tributary.

According to Robinson et al. (1981) the Pauzar Rockshelter was sporadically occupied by Fort Ancient People from about 900 to 1650 AD. The time frame was determined by artifact correlation utilizing projectile points and ceramics, and the site's location in the Inner Blue Grass. The Fort Ancient people probably used the site as shelter during hunting expeditions and in the fall, winter and spring when food reserves were in short supply. None of the shell material found to date was modified either as adornments or as tools, thus the mollusks were apparently used as a subsistence food source.

The mollusk remains from the Pauzar shelter provided additional insight into the diversity that was once present in the Kentucky River. Two of the pleurocerids, *Pleurocera canaliculatum* and *Lithasia obovata*, were the most common constituents of the mollusk remains (Table 1). Today, the

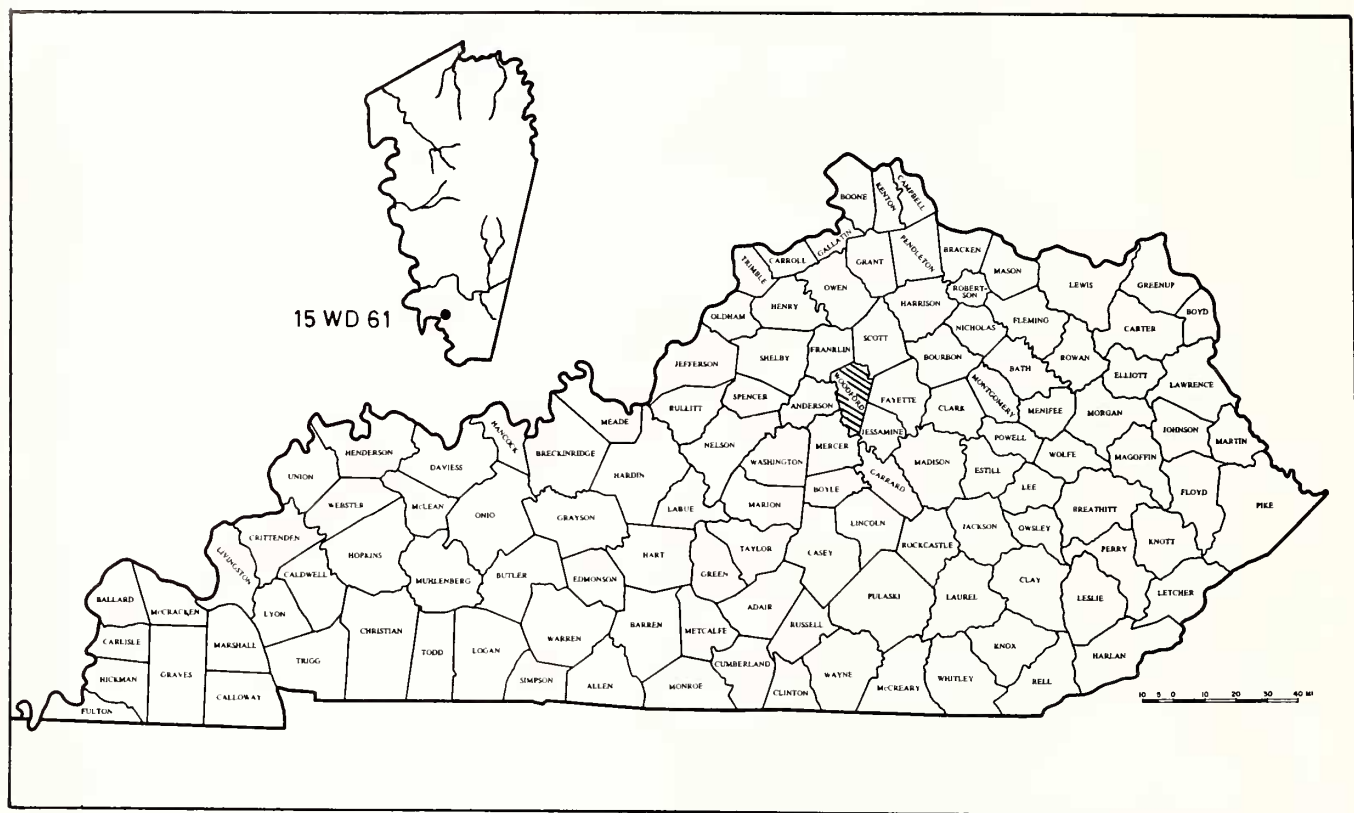


Fig. 1. Location of the Pauzar Rockshelter in Kentucky.

latter is rare in the river, having been reported from the drainage previously only by Branson and Batch (1982), while *P. canaliculatum* is still common in the mainstem of the drainage. *Pleurocera canaliculatum* is found throughout the larger streams of the Ohio River system, usually occupying muddy situations (Goodrich, 1938). Collection data presented by Goodrich (1940) and Branson and Batch (1982) indicate that *L. obovata* prefers medium to large streams.

Twenty species of unionids were identified from the shell remains; of these, two species, *Elliptio dilatatus* and *Actinonaias ligamentina carinata*, exhibited the highest relative abundance of unionids. According to Parmalee (1967) both species may be found in a variety of stream sizes, in current, at depths varying from a few inches to several feet and preferring sand and gravel substrata. Seven species of particular interest, *Fusconaia maculata maculata* (= *F. subrotunda*), *Pleurobema clava*, *P. rubrum* (= *P. pyramidatum*), *P. plenum*, *Obovaria retusa*, *Epioblasma rangiana*, and *E. sampsoni*, exhibited low relative abundance values; this seems to indicate that they were not particularly abundant during the Late Prehistoric Period (900–1700 AD). Furthermore, all of these naiads have become increasingly rare in Kentucky and recent data (Williams, 1975; Houpp, 1980; Taylor, 1981) indicate that these species are probably extirpated from the Kentucky River drainage. These seven

unionids appear on the Kentucky Academy of Science–Kentucky Nature Preserves Commission's list of "Endangered, Threatened, and Rare Animals and Plants of Kentucky" (Branson et al., 1982).

This study provides the first report of *Pleurobema plenum*, *O. retusa* and *E. sampsoni* from the Kentucky River system. Also, *P. rubrum* has not been observed from this drainage since described by Rafinesque (1820). A review of reported habitat data (Ortmann, 1926; Parmalee, 1967; Johnson, 1978) reveals that these species are generally found in medium to large streams accompanying shoal areas.

The habitat requirements of mollusks observed at the rockshelter indicate that the Kentucky River was quite different during the Late Prehistoric Period. At that time, the Kentucky River was apparently a medium size river with a pool-riffle environment, gravel-sand substratum and moderate gradient. Today, the river is characterized for the first 2/3 of its length by a series of slow flowing, silt-laden pools that were created by the construction of 14 U.S. Army Corps of Engineers locks and dams during the late 1800's and early 1900's. Williams (1975) states that the mussel fauna of the upper portions of the Kentucky River has substantially deteriorated since Danglade's (1922) study due to perturbations of extensive coal mining operations that occur throughout the

Table 1. Mollusk remains identified from the Pauzar Rockshelter and their relative abundance.

Taxa	Relative Abundance
Physidae	
<i>Physa</i> sp.	< 1%
Pleuroceridae	
<i>Goniobasis</i> sp. (= <i>Elimina</i> sp.)	< 1%
<i>Pleurocera canaliculatum</i> (Say, 1821)	47%
<i>Lithasia obovata</i> (Say, 1829)	14%
*Unionidae	
<i>Magnoniais nervosa</i> (Rafinesque, 1820)	1%
<i>Quadrula quadrula</i> (Rafinesque, 1820)	< 1%
<i>Quadrula pustulosa</i> (Lea, 1831)	2%
<i>Amblema plicata</i> (Say, 1817)	< 1%
<i>Fusconaia maculata maculata</i> (Rafinesque, 1820)	1%
<i>Fusconaia flava</i> (Rafinesque, 1820)	< 1%
<i>Pleurobema clava</i> (Lamarck, 1819)	3%
<i>Pleurobema sintoxia</i> (Rafinesque, 1820)	1%
<i>Pleurobema cordatum</i> (Rafinesque, 1820)	3%
<i>Pleurobema rubrum</i> (Rafinesque, 1820)	< 1%
<i>Pleurobema plenum</i> (Lea, 1840)	< 1%
<i>Elliptio dilatata</i> (Rafinesque, 1820)	9%
<i>Ptychobranthus fasciolaris</i> (Rafinesque, 1820)	2%
<i>Cyprogenia stegaria</i> (Rafinesque, 1820)	< 1%
<i>Actinonaias ligamentina carinata</i> (Barnes, 1823)	6%
<i>Obovaria subrotunda</i> (Rafinesque, 1820)	2%
<i>Obovaria retusa</i> (Lamarck, 1819)	< 1%
<i>Lampsilis ventricosa</i> (Barnes, 1823)	< 1%
<i>Epioblasma rangiana</i> (Lea, 1839)	< 1%
<i>Epioblasma sampsoni</i> (Lea, 1861)	2%

*The unionid names presented here follow those listed on Ohio State University Museum of Zoology's List of the Unionid Mollusks of the Ohio River System, compiled by Dr. David H. Stansbery, May 1982.

headwaters. He also notes that only three areas in the mainstem contain extant mussel beds; however, these beds are small and recruitment is marginal at best and not sufficient to maintain the beds. No doubt this is due to habitat destruction caused by the impounding of the river by the aforementioned locks and dams, and increased siltation resulting from coal mining operations.

ACKNOWLEDGEMENTS

We would like to express our appreciation to the Fred Pauzar family for allowing the University of Kentucky's Department of Anthropology to scientifically excavate the rockshelter, to Dr. David Stansbery of the Ohio State University Museum of Zoology for identifying and/or verifying select mollusk remains and to Billie Miller for

typing this paper. Analysis of the archaeological materials from the Pauzar Rockshelter was conducted under the auspices of the Office of State Archaeology, University of Kentucky, with grant monies from the Kentucky Heritage Commission and the University of Kentucky's Program for Cultural Resource Assessment.

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